

Superfund Basic Research Program  
Agenda  
December 3-5, 2007  
Washington Duke Inn



*Sunday, December 2<sup>nd</sup>, 2007*

4:00 – 7:00	Registration/Check-In	
6:00 – 8:00	Research Translation Poster Preview Social	Levine Science Research Center
7:00 – 9:00	SBRP Student/Postdoc/Alumni Mixer	Forest Room

*Monday, December 3<sup>rd</sup>, 2007*

7:30 – 5:00      Registration/Check-In

**Welcome**

**Presidents Ballroom I & II**

9:00	Opening Remarks Claudia Thompson, Ph.D., Acting Director, NIEHS Superfund Basic Research Program
9:05	Welcome Samuel Wilson, M.D., Acting Director, NIEHS
9:20	David Price, Ph.D., US Congressman, 4th District of North Carolina

**SBRP Partnerships**

9:35	Introductory Remarks William Suk, Ph.D., M.P.H., Acting Deputy Director, NIEHS
9:45	Joseph Hughes, Jr., M.P.H., Director, NIEHS Worker Education and Training Program
9:55	Susan Bodine, Assistant Administrator, US EPA Office of Solid Waste and Emergency Response
10:10	Henry Falk, M.D., M.P.H., Director, CDC National Center for Environmental Health
10:25	Break

## Keynote Presentation

## Presidents Ballroom I & II

- 11:00      **Introduction: The Unique Vulnerability of Children to Toxic Chemicals in the Environment: An Appreciation of the Work of Dr. Sandra Steingraber**  
Philip Landrigan, M.D., MSc., Professor & Chair, Department of Community & Preventive Medicine, Professor of Pediatrics, Mount Sinai School of Medicine
- 11:05      **We All Live Downstream: An Ecologist's Perspective on Toxic Waste and Environmental Human Rights**  
Sandra Steingraber Ph.D., Distinguished Visiting Scholar at Ithaca College

## Lunch

- 12:00      Lunch provided for meeting registrants      Ambassador Ballroom  
Student Lunch with Program Directors      Vista Dining Room

## Keynote Presentation

## Presidents Ballroom I & II

- 1:00      **Opening and Introduction**  
Kenneth Olden, Ph.D., Sc.D., Former Director, NIEHS
- 1:10      **The Impact of 20 Years of Superfund Research: An Integrated Approach**  
Bruce Hammock, Ph.D., Distinguished Professor of Entomology & Cancer Research Center, University of California, Davis

## Science Session #1: Innovative Technologies

## Presidents Ballroom I & II

- Moderator**      Rolf Halden, Ph.D., P.E., Associate Professor, Environmental Health Sciences, Johns Hopkins University
- 2:00      **Application of Omics-based Tools to Optimize Bioremediation**  
Lisa Alvarez-Cohen, Ph.D., Fred and Claire Sauer Professor and Chair of Environmental Engineering, University of California, Berkeley
- 2:20      **Sensing Superfund Chemicals with Recombinant Systems**  
Sylvia Daunert, Ph.D., Gill Eminent Professor of Analytical and Biological Chemistry, University of Kentucky
- 2:40      **Zebrafish as a Complementary Vertebrate Model**  
Elwood Linney, Ph.D., Professor of Microbiology, Environmental Sciences & Policy, Duke University
- 3:00      **Surface-Enhanced Raman Spectroscopy for Trace Arsenic Detection in Groundwater**  
Martin Mulvihill, Graduate Student, University of California, Berkeley
- 3:15      **PCE Remediation Using Catalytic Technology**  
Erik Rupp, Graduate Student, University of Arizona
- 3:30      **Break**

## Science Session #2: Biological and Environmental Indicators

### Presidents Ballroom I & II

<b>Moderator</b>	Nancy Denslow, Ph.D., Associate Professor, Physiological Sciences, University of Florida
4:00	<b>Sorting Through Nature's Complexity to Identify the Most Important Drivers of Metal Fate in Aquatic Systems</b> Carol Folt, Ph.D., Professor, Biological Sciences, Dartmouth College
4:20	<b>Development and Application of Biomarkers for Human Reproductive Health</b> Bill Lasley, Ph.D., Professor, Department of Population Health and Reproduction, University of California, Davis
4:40	<b>Adventures in Research Translation</b> Clement Furlong, Ph.D., Research Professor of Genome Sciences and Medicine, University of Washington
5:00	<b>Promiscuous Nature of UDP-Glucuronosyltransferases and its Functional Implications</b> Theresa Operano, Graduate Student, University of California, San Diego
5:15	<b>Application of Serum Biomarkers for Analysis of Trichloroethylene Metabolism in Genetically Diverse Panel of Mouse Inbred Strains</b> Sungkyoon Kim, Ph.D., Postdoctoral Fellow, University of North Carolina, Chapel Hill

## Poster Session #1 and Reception

### Presidents Gallery Presidents Ballroom III & IV

6:00	Program Posters Research Translation/Outreach Posters Science Posters Group I
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*Tuesday December 4<sup>th</sup>, 2007*

7:30 – 5:00      Registration/Check-In

**Keynote Presentation**

**Presidents Ballroom I & II**

- 8:30              Opening and Introduction  
Anne Sassaman, Ph.D., Former Director, Division of Extramural Research and Training
- 8:35              The Superfund Biomedical Research Program as an Early Model of Translational Research  
Bernard Goldstein, M.D., Professor, Department of Environmental and Occupational Health, University of Pittsburgh

**Science Session #3: Metals and Arsenic**

**Presidents Ballroom I & II**

- Moderator**      Joshua Hamilton, Ph.D., Professor, Department of Pharmacology and Toxicology, Dartmouth Medical School, Professor, Department of Chemistry, Dartmouth College
- 9:30              An Overview of the 20 Years of the Berkeley Arsenic Health Effects Research Program  
Allan Smith, M.D., Ph.D., Professor of Epidemiology, School of Public Health, Division of Environmental Health Sciences, University of California, Berkeley
- 10:10              Break
- 10:30              Cellular Vitamin C as the Key to High Mutagenicity and Genotoxicity by Chromium(VI)  
Anatoly Zhitkovich, Ph.D., Associate Professor, Laboratories of Molecular Medicine, Brown University
- 10:50              Microbes, Minerals and Arsenic in Groundwater  
Lily Young, Ph.D., Professor II, Environmental Sciences, Rutgers University
- 11:10              Mobilization of Arsenic from Contaminated Sediments for Improved Remediation  
Karen Wovkulich, Graduate Student, Columbia University
- 11:25              A Disposable Cadmium On-chip Sensor for Monitoring a Mulch Permeable Reactive Barrier (PRB)  
Zhiwei Zou, Graduate Student, University of Cincinnati

**Lunch**

**Ambassador Ballroom & Vista Dining Room**

- 11:40              Lunch provided for meeting registrants

**Wetterhahn Awardee Presentation**

**Presidents Ballroom I & II**

- 12:30              Introduction and Presentation  
Dennis Lang, Ph.D., Acting Director, Division of Extramural Research and Training, NIEHS
- The Ecophysiology of Metal Accumulation in Aquatic Food Webs  
Roxanne Karimi, Ph.D., Postdoctoral Fellow, Stony Brook University, Former Graduate Student with the Dartmouth SBRP

## **Panel Discussion: Provocative Perspectives on Risk Assessment**

**Moderator** Richard DiGiulio, Ph.D., Professor of Environmental Toxicology, Duke University

1:30 In this panel discussion, participants will confront existing paradigms for risk assessment and propose thought-provoking alternatives. They will propose a controversial perspective on low-dose extrapolation, delve into new models for toxicity testing and explore emerging thoughts on a systems approach to identifying the environmental factors that contribute to disease burden. Come with your questions, and join the discussion!

### **Panel Members:**

#### **Is the Linear Default in Cancer Risk Assessment Based on Science?**

James Swenberg, Ph.D., D.V.M., Professor, Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill

#### **Toxicity Testing for Risk Assessment in the 21st Century**

Kim Boekelheide, M.D., Ph.D., Professor, Pathology and Laboratory Medicine, Brown University

#### **A Systems Approach to Human Health Risk Assessment**

Julia Gohlke, Ph.D., Postdoctoral Fellow, Environmental Systems Biology Group, NIEHS

3:00 Break

## **Science Session #4: Computational Approaches**

## **Presidents Ballroom I & II**

**Moderator** Moiz Mumtaz, Ph.D., Science Advisor, Division of Toxicology & Environmental Medicine, ATSDR

3:30 **Nonlinear Biological Processes, Computational Modeling, and de Minimis Risk Levels of Environmental Toxicants**  
Rory Conolly, Ph.D., US EPA Center for Computational Toxicology

3:50 **Integration of Computer Simulation to Toxicology of Chemical Mixtures – Multi-scale Modeling**  
Raymond Yang, Ph.D., Professor of Toxicology, Department of Environmental and Radiological Health Sciences, Colorado State University

4:10 **Evaluating the Effect of Site-specific Features on Vapor Intrusion Risks using a 3-D Numerical Model**  
Kelly Pennell, Ph.D., P.E., Postdoctoral Research Associate, Engineering, Chemical Engineering, Brown University

4:30 **Modeling Mixtures of Full and Partial Agonists Using Generalized Concentration Addition**  
Greg Howard, Graduate Student, Boston University

4:45 **Semi-empirical and *Ab Initio* Computation of Xenobiotic Geometry**  
Gregor Luthe, Ph.D., Postdoctoral Fellow, University of Iowa

## **Poster Session #2 and Reception**

## **Presidents Gallery Presidents Ballroom III & IV**

6:00 Program Posters  
Research Translation/Outreach Posters  
Science Posters Group II

*Wednesday December 5<sup>th</sup>, 2007*

8:00 – 10:00      Registration/Check-In

## **Colloquium: Visions for the Future**

## **Presidents Ballroom I & II**

Science holds the promise of creating a better tomorrow. As scientists, we are continuously seeking ways to push the boundaries of science to fulfill this promise. Four distinguished speakers, who are pushing the boundaries of their respective fields, will share their insights on the future prospects for the scientific enterprise. They will stimulate discussion related to public health, epigenetics, microbial remediation and nanotechnology and identify the opportunities and challenges that lie before us so that science can meet its promise to benefit society.

In looking to the future, it is timely to recognize those who will be fulfilling the promises of tomorrow. Accordingly, it is appropriate that we begin this colloquium with recognition of student poster presenters.

**Moderators**      Stephen Safe, D. Phil., MSc., Distinguished Professor, Physiology & Pharmacology, Texas A & M University  
Jay Gandolfi, Ph.D., Professor of Pharmacology, Department of Pharmacology and Toxicology, University of Arizona

9:00                  Student Poster Awards

9:30                  **What are the Lessons for Public Health?**  
Lynn Goldman, M.D., M.P.H., Professor, Department of Environmental Health Sciences and Chair, Interdepartmental Program in Applied Public Health, Bloomberg School of Public Health, Johns Hopkins University

10:10                **Epigenetics: The New Genetics of Toxicology**  
Randy Jirtle, Ph.D., Professor, Department of Radiation Oncology and Internal Scientific Advisory Committee, Duke University Medical Center

10:50                **Systems Biology Approach to Optimizing Bioremediation**  
Derek Lovley, Ph.D., Distinguished University Professor, University of Massachusetts, Amherst

11:30                **Research Needs in Evaluating Nanomaterial Risks: The Fullerene Example**  
Mark Wiesner, Ph.D., James L. Meriam Professor of Civil & Environmental Engineering, Pratt School of Engineering, Nicholas School of the Environment and Earth Sciences, Duke University

12:10                Panel Discussion

12:45                **Closing Remarks**  
Claudia Thompson, Ph.D., Acting Director, Superfund Basic Research Program

## **Lunch**

## **Ambassador Ballroom & Vista Dining Room**

1:00                  Lunch provided for meeting registrants

